FACE INVESTIGATION

SUBJECT: Farmer dies when hay elevator he and 2 other men were moving came into contact with a high power transmission line

SUMMARY:

A 33 year old white male farmer was electrocuted when a hay elevator he was moving contacted a 7200 volt power line, 21 feet 10 inches above the ground. Over the years the Kewanee 45 foot hay elevator had been moved manually or by tractor solely by the farmer without mishap. On this occasion, the farmer and 2 other men (a neighbor and a hired hand with 2 days experience) were manually moving the elevator away from one barn window to relocate it at an adjacent window. The elevator either slipped but remained in their grip and dropped lower to the ground than planned, causing the discharge end to raise and contact the power line or they failed to lift the loading end high enough to provide safe clearance between the power line and the discharge end. The weather was described as dry and sunny the day of the incident. The farmers wife saw the incident from her kitchen window and called for emergency services. Emergency personnel arrived on the scene within 5 minutes and followed complete protocol for resuscitation on the victim without success. The victim was pronounced dead at the scene within 1 hour of the incident. The hired man and the neighbor were treated at nearby hospitals and released. The Wisconsin FACE investigator concluded that, in order to prevent similar occurrences the following issues should be addressed.

! Conduct a jobsite survey to identify potential hazards before starting any job, and implement any control measures

! Ensure that equipment is not operated within 10 feet of energized power lines

! Develop and implement a written safety program and train workers to recognize and control hazards

INTRODUCTION:

On August 7, 1992, a 33 year old farmer was electrocuted when the hay elevator he was moving contacted a 7200 volt overhead power line. The Wisconsin FACE investigator was notified of the fatality by the Wisconsin Department of Labor and Human Relations on August 9, 1992. On January 21 a site visit was made, photographs taken and the widow who was home at the time of the incident was interviewed. A death certificate, police report and coroners report were obtained and the Med-Flight emergency physician who had provided care at the site was interviewed.

The fatally injured farmer had been farming on the site of the incident for 10 years. The non-fatally injured hired man had been on the job for two days and the non-fatally injured neighbor who stopped by to help out was familiar with the farm but was not working for the farmer. The farmers's widow identified her husband as safety officer. There were no written safety rules or policies. Safety training was provided for

workers on the job under the supervision of the employer.

INVESTIGATION:

On August 7, 1992, the farm owner/operator and an 18 year old hired man, who was working his second day on the farm, were loading hay via a 45 foot Kewanee elevator into a barn loft. The barn was located beside a county road. An over head powerline ran parallel to the road between the side of the barn and the road edge. The powerline, 7200 volts phase to ground, was 21 feet, 10 inches above the ground. The barn loft was accessed by loading through the windows placed along the barn side. As the loft was filled it was necessary to relocate the hay elevator from one window to the next. The farmer and hired man had filled the area of the loft accessed by the first window and assisted by a neighbor who stopped by to help, started to move the elevator for repositioning. To reposition, the farmer was pulling on the hay elevator at its lowest point, while the neighbor was pushing on the framework in the middle of the elevator and the hired man was pushing on another portion of the frame near its rear. The day was sunny and dry and it was nearly noon when they moved the elevator away from the barn. It either slipped from their hands or they did not raise the loading end high enough to allow safe clearance between the powerline and the elevator discharge end. The discharge end contacted the energized field phase conductor completing a path to ground through the victims. The hired man and the neighbor assisting in the move were taken to nearby hospitals where they were treated and released. The farmer was given CPR and additional medical treatment a short distance from the hay elevator while the elevator was still in contact with the energized field phase conductor. He was pronounced dead at the scene 55 minutes following the incident by a Med-Flight emergency physician.

The electric company de-energized the power lines after the victims were removed. The owner of the electric company indicated that when the hay elevator was being repositioned it contacted the field phase conductor while the subjects were in contact with the elevator, completing a path to ground. After the power was de-energized, the elevator was inspected by electric company workers. There were burns and scrape marks 3 feet 1 inch below the discharge end on the right side of the elevator, the left side tire was flat and burn marks were present on the inside of the tire.

CAUSE OF DEATH: Electrocution

RECOMMENDATIONS/DISCUSSION:

Recommendation #1: Employers should conduct a jobsite survey to identify potential hazards before starting any job and implement hazard reduction control measures.

Discussion: A jobsite survey would have identified the power lines as a hazard and control measures could have been addressed to assure that safe clearance was maintained between the powerline and the elevator. Hazard reduction should have included affixing a warning on the elevator regarding potential for worker

electrocution due to contact with overhead power lines. Such a warning should include the need for designating an observer to observe clearance between the elevator discharge end and the powerline and to give warning when clearance is not safe.

Securing the hay elevator to a tractor, monitoring clearance and then moving the elevator, may have provided a way to move the elevator that did not depend on human strength and coordination of 3 workers.

Recommendation #2: Re-design the barn to eliminate the entrance that was proximal to the powerline. Install doors and windows on another side of the barn.

Discussion: If access to the hay loft had been well away from the powerlines safe clearance could have been more easily maintained.

Recommendation #3: Develop and implement a written safety program and train workers to recognize and control hazards.

Discussion: A written safety program and training would ensure that employees and anyone helping out on the farm are properly trained in the safe operation of equipment and that safety procedures are followed at all times. There is no evidence that the hired hand was trained to assist with this hay elevator move, though the victim had done the move many times.